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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/621,407	07/21/2000	William J. Domino	19308.0116U1	4082

35856 7590 08/18/2008

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EXAMINER	

ART UNIT	PAPER NUMBER

DATE MAILED: 08/18/2008

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/621,407
Filing Date: July 21, 2000
Appellant(s): DOMINO ET AL.

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**Lawrence D. Maxwell*
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/3/07 appealing from the Office action mailed 3/24/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6658237 Rozenblit 12-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 11-23, are rejected under 35 U.S.C. 102(e) as being anticipated by Rozenblit et al. (US Patent Number 6,658,237).

Regarding claim 1, Rozenblit teaches a system for transmitting and receiving data (see figure 6, and figure 8)

comprising:

a direct-conversion receiver 310 receiving a signal modulated on a carrier frequency signal the direct conversion receiver 310 (see figure 6, col 12 lines 15-32) further comprising:

a local oscillator 311 coupled to the direct conversion receiver 310, the local oscillator

generating a signal having a frequency equal to a sub harmonic of carrier frequency signal (see figure 8, col 19 lines 56-67, col 20 lines 1-63); and

a transmitter 300 coupled to the local oscillator 311 (see figure 8, col 18 lines 11-60).

Regarding claims 2-3, 12-13, Rozenblit teaches a method wherein mixing the carrier signal with the sub harmonic local oscillator signal to extract the base band signal further comprises:

a phase shifter 524 coupled to first subharmonic local oscillator mixer 522, where the output of the first subharmonic local oscillator mixer 522 is used to generate a quadrature signal of a phase shift 524 keyed signal (see figure 8, col 20 lines 3-21); and

a second subharmonic local oscillator mixer 523, where the output of the second subharmonic local oscillator mixer 523 is used to generate an in phase shift 524 keyed signal (see figure 8, col 20 lines 15-35); and

mixing the carrier signal with the sub harmonic PLL (functions as a local oscillator) signal to extract an in-phase signal 524, phase-shifting 524 the sub harmonic local oscillator signal, and mixing the carrier signal with the phase-shifted 524 sub harmonic local oscillator signal to extract a quadrate phase signal (see figure 8, col 20 lines 3-15, lines 48-63).

Regarding claim 4, Rozenblit teaches a system comprising:

a low noise amplifier LNA 309 coupled to the phase shifter, wherein the signal modulated on the carrier signal is received by the low-noise amplifier and is transmitted to the phase shifter after being amplified (See figure 8, col 20 lines 15-30);

Regarding claims 5-6, Rozenblit teaches a system further comprising a frequency multiplier coupled between the local oscillator 607 and the transmitter 605 wherein the frequency multiplier (610/611) increases the frequency of the oscillator 600 (see figure 12A col 15 lines 65-67, col 16 lines 1-40).

Regarding claim 7, Rozenblit teaches a system wherein the transmitter comprises:

a frequency multiplier 610 coupled local oscillator 607 (col 15 lines 56-57, col 16 lines 1-40); and

an in-phase/quadraure modulator coupled to the frequency multiplier 610/611, receiving an in-phase modulation input signal and a quadrate modulator input signal, and outputting a quadrature phase shift keyed signal modulated at the multiplied local oscillator frequency (col 19 lines 50-67, col 20 lines 1-21).

Regarding claim 8, Rozenblit teaches system wherein the transmitter comprises:

an in-phase/quadrate modulator coupled to the local oscillator, receiving an In-phase modulation input signal and a Quadrate modulation (Rx Q) input signal, and outputting a quadrate phase shift keyed signal modulated at the local oscillator frequency (col 19 lines 50-67, col 20 lines 1-21); and

a frequency multiplier coupled 531 to the in phase/quadrate modulator and multiplying the frequency of the quadrate phase shift keyed signal (col 20 lines 3-57, col 23 lines 15-22).

Regarding claim 11, Rozenblit teaches a method for transmitting and receiving data (see figure 2) comprising:

receiving a carrier signal modulated with a data signal (col 12 lines 45-55);

mixing the carrier signal with a subharmonic local oscillator signal to extract a baseband signal (see figures 6, 8, col 12 lines 32-67, col 13 lines 1-5, col 14 lines 47-67);

multiplying the subharmonic local oscillator signal (col 13 lines 55-67, col 14 lines 1-20) ; and

modulating an outgoing data signal with the multiplied subharmonhic local oscillator signal (col 12 lines 15-32); and

a direct-conversion receiver receiving a signal modulated on a carrier frequency signal (col 13 lines 55-67, col 14 lines 1-10).

Regarding claim 14, Rozenblit teaches a method wherein modulating outgoing data signal with sub-harmonic local oscillator signal comprises:

multiplying the sub-harmonic local oscillator signal (col 14 lines 2-20, col 20 lines 30-46); and

modulating an outgoing in-phase data signal and an outgoing quadrature phase data signal with the multiplied sub-harmonic local oscillator signal (col 20 lines 47-63).

Regarding claim 15, Rozenblit teaches a method wherein the outgoing data signal with the sub-harmonic local oscillator signal comprises:

modulating an outgoing in-phase data and an outgoing quadrature phase data signal with the sub-harmonic local oscillator signal to generate outgoing data signal (col 20 lines 47-58); and

multiplying the modulated outgoing data signal to generate the outgoing data signal (col 20 lines 59-67, col 21 lines 1-27).

Regarding claim 16, Rozenblit teaches a method wherein modulating the outgoing data signal with the sub harmonic local oscillator signal comprises:

frequency modulating the sub-harmonic local oscillator signal during a transmit cycle (col 16 lines 65-67, col 17 lines 1-20, col 18 lines 37-50); and

interrupting frequency modulation of the sub-harmonic local oscillator signal during a receive cycle (col 18 lines 11-50, lines 65-67, col 19 lines 1-35).

Regarding claims 17-18, Rozenblit teaches a method further comprising opening a phase locked loop during the transmit cycle to lock the sub-harmonic local oscillator signal wherein modulating the outgoing data signal with the sub harmonic local oscillator signal (col 19 lines 14-35, col 24 lines 9-40).

Regarding claim 19, Rozenblit teaches a method wherein modulating the outgoing data signal with the sub harmonic local oscillator signal comprises:

modulating an outgoing in-phase data signal and an outgoing quadrature phase data signal with the sub harmonic local oscillator signal at a sub harmonic modulation index to generate a modulated outgoing data signal (col 16 lines 64-67, col 17 lines 1-20, lines 65-67, col 18 lines 1-21 lines 39-51); and

multiplying the modulated outgoing data signal by an inverse sub harmonic to generate the outgoing data signal (col 19 lines 50-67, col 20 lines 1-63).

Regarding claim 20, Rozenblit teaches a system for transmitting and receiving data comprising:

a low noise amplifier LNA 309 receiving a modulated incoming cartier signal having a carrier signal frequency (see figure 6, col 12 lines 15-67, col 13 lines 1-6, lines 45-55);

a local oscillator generating a signal having a subharmanic frequency of the carrier signal (col 12 lines 15-32);

a first mixer 527 coupled to the low noise amplifier LNA 309b and the local oscillator 518 the first mixer 527 receiving the modulated incoming carrier signal and generating an in-phase 529 incoming data signal (see figure 8, col 12 lines 45-55) a second mixer 528 coupled to the low noise amplifier LNA 309b and the local oscillator 518, the second mixer 528 receiving the modulated incoming carrier signal and generating a quadrate phase incoming data signal 313 (see figure 8, col 20 lines 2-63); and

a modulator 301 coupled to the a local oscillator 302, the modulator receiving an outgoing data signal and modulating the outgoing data signal onto the a local oscillator 302 signals to generate an outgoing modulated carrier signal (col 20 lines 2-65);

a transmit amplifier 304 coupled to the modulator 301, the transmit amplifier amplifying the outgoing modulated carrier signal tO a transmission power level (col 21 lines 50-63, col 23 lines 22-40, col 24 lines 20-40).

Regarding claim 21, Rozenblit teaches a system further comprising a general purpose computing:

platform coupled to the first mixer 500, the second mixer 501, and the modulator 301, the general purpose computing platform decoding an incoming data signal from the in-phase 503 incoming data signal and the quadrature phase incoming data signal, and generating the outgoing data signal (see figure 8, col 20 lines 47-66).

Regarding claim 22, Rozenblit teaches a system further comprising a telephone handset (signals from antenna 300) coupled to the first mixer 500, the second mixer 501, and the modulator 301, the telephone handset decoding an incoming data signal from the in-phase 503 incoming data signal and the quadrature phase incoming data signal, and generating the outgoing data signal (see figure 8, col 20 lines 47-57).

Regarding claim 23, Rozenblit teaches a system wherein an antenna directly connected to the low noise amplifier 309 and the low noise amplifier 309 is directly connected to the one or more sub-harmonic (col 18 lines 31-51).

Allowable Subject Matter

Claims 9-10, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 8/30/07 have been fully considered but they are not persuasive.

In response to the applicant's argument that "Rozenblit fails to teach a direct-conversion receiver receiving a signal modulated on a carrier frequency signal, the direct-conversion receiver further comprising one or more subharmonic local oscillator mixers, a local oscillator coupled to the direct conversion receiver coupled to the direct conversion receiver, the local oscillator generating a signal having a frequency equal to a subharmonic of the carrier frequency signal; and transmitter coupled to the local oscillator;" t*he Examiner asserts that Rozenblit teaches the frequency different between the transmit and receive bands is a fixed carrier signal, and can vary within a predetermined frequency range, see receive versus transmit path in Figure 8, column 13, line 27+.*

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Rozenblit teaches the translation loop upconverter is configured to increase the carrier frequency of the output of the quadrature modulator so that it is at the appropriate frequency for transmission. In the case of DCS, the transmit band is 1710-1785 MHz. In the case of GSM, the transmit band is 890-915 MHz. The appropriate frequency for transmission is the selected channel within the appropriate transmit band, which has a frequency equal to that of the selected channel in the receive band minus the frequency offset for the band. In two configurations, the output of the PLL is shared by the translation-loop upconverter in that a signal derived from the output from the PLL

is provided to the filtered LO input of the downconversion mixer in the translation loop upconverter. In the case of the GSM band, the PLL output is applied directly to the filtered LO input of the mixer. In the case of the DCS band, the PLL output, after passage through the doubler, is applied to the LO input of the mixer. A related method of providing full duplex transmission and reception is provided which comprises the following steps: selecting a band from a plurality of bands; receiving a signal at a channel within the selected band, the channel having a frequency; directly converting the signal to a baseband signal using a first signal derived from a local oscillator signal, the first signal being an nth subharmonic of the channel frequency, wherein n is an integer greater than 1; upconverting a second baseband signal to a transmission frequency; and transmitting the upconverted signal. See Figure 8 and the description of the local oscillator output and the function of the frequency doubler as well as the doubling mixers on column 19, line 58 through column 20, line 14.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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